

**Abstract**

A method and machine-readable medium provide a technique to modify a hexahedral finite element volume mesh using dual generation and sheet extraction. After generating a dual of a volume stack (mesh), a predetermined algorithm may be followed to modify the volume mesh of hexahedral elements. The predetermined algorithm may include the steps of determining a sheet of hexahedral mesh elements, generating nodes for merging, and merging the nodes to delete the sheet of hexahedral mesh elements and modify the volume mesh.